

REMARKS

By this amendment, claims 1-13 have been cancelled and claims 14-21 have been added. Thus, claims 14-21 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

The specification and abstract have been carefully reviewed and revised to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and Abstract by the current amendment. The attachment is captioned "Version with markings to show changes made."

On page 2 of the Office Action, claims 1-4, 12, and 13 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. It is noted that claims 1-4, 12, and 13 have now been cancelled. Newly added claims 14-21 have been drafted to avoid the issues raised by the Examiner and to otherwise comport with the requirements of 35 U.S.C. 112, second paragraph. Accordingly, it is submitted that the rejection under 35 U.S.C. 112, second paragraph, is no longer applicable.

Next, on page 2 of the Office Action, claims 1-4, 12, and 13 were rejected under 35 U.S.C. 102(b) as being anticipated by Hiroyuki et al. (Japanese Patent Publication 2001-032786). It is noted that the apparatus claims 1-4, 12, and 13 have now been cancelled. Accordingly, it is submitted that this rejection under 35 U.S.C. 102(b) is moot.

Next, on page 5 of the Office Action, claims 5-11 were rejected under 35 U.S.C. 102(b) as being anticipated by McCullough et al. (U.S. 4,512,066). This rejection is believed moot in view of the cancellation of claims 5-11. Furthermore, it is respectfully submitted that this rejection is clearly inapplicable to the present claims for the following reasons.

With exemplary reference to Figs. 2A, 2B, and 11, claim 14 sets forth a method for machining a scroll wrap comprising: forming a stationary scroll 1 having an end plate 1A and a scroll wrap 1B extending from the end plate 1A thereof, the scroll wrap 1B having a side face 1C, 1D; forming a slewing scroll 2 having an end plate 2A and a scroll wrap 2B extending from the end plate 2A thereof, the scroll wrap 2B having a side face 2C, 2D; wherein the side face 1C, 1D of the stationary scroll 1 and the side face 2C, 2D of the slewing scroll are configured to slide

with respect to each other in use; and Hale-machining the side face (1C, 1D or 2C, 2D) of at least one of the stationary scroll wrap 1B and the slewing scroll wrap 2B by moving a non-rotational tool 9 along a longitudinal direction of the one of the stationary scroll wrap 1B and the slewing scroll wrap 2B.

Thus, new independent claim 14 sets forth a method of machining a scroll wrap wherein a side face of the scroll wrap is subjected to Hale-machining by moving a non-rotational tool *along the longitudinal direction of the scroll wrap*.

McCullough discloses a method of fabricating scroll members involving push broaching (abstract). As described at col. 6 lines 29-32 and shown in Figs. 4A-4D of McCullough, push broaching requires the use of a broaching tool having a tooth 46 which cuts a chip as it is forced toward the end plate surface 28a. McCullough states that it is only possible to broach axially toward the end plate surface 20 (see col. 5 lines 26-27). Thus, McCullough clearly does not disclose Hale-machining by moving the non-rotational tool *along the longitudinal direction of the scroll wraps* as required by claim 14.

At col. 8 lines 1-5, McCullough discloses indexing the scroll member 10 in a counterclockwise direction through a predetermined angle. However, this relative movement between the broaching tool and the scroll member is only for aligning the broaching tool relative to the scroll member prior to cutting and for allowing the broaching tool to be removed. In other words, when McCullough indexes the broaching tool relative to the scroll member, there is relative longitudinal movement between the broaching tool and the scroll member. However, during this indexing procedure, there is no contact between the broaching tool and the scroll member. Thus, McCullough fails to disclose a scroll wrap being *Hale-machined* during the longitudinal movement between the non-rotational tool and the side face of the scroll wrap as required by claim 14.

Furthermore, at col. 6 lines 20-64, for example, the McCullough patent discloses broach cutting with an angled cutting tool. As may be appreciated from Figs. 9, 11, and 13 of McCullough, the cutting face of the broaching tool 57 is angled, presumably to allow the tip of the cutting face to extend as close as possible to the junction of the flank wall and the end plate. On the other hand, claim 14 specifies that the side face of one of the stationary scroll wrap and the slewing scroll wrap is Hale-machined. As described in the present specification at, for example, page 9 lines 1-5, Hale-machining provides for the cutting face to be moved relative to

material to be cut so as to be substantially perpendicular to the direction along which the cutting is performed. This is clearly different than the broach cutting disclosed in McCullough. Thus, the McCullough patent fails to disclose *Hale-machining* as required by new independent claim 14.

Accordingly, it is submitted that the prior art of record does not disclose or suggest *Hale-machining a side face of a scroll wrap by moving a non-rotational tool along a longitudinal direction of the scroll wrap in a method for machining a scroll wrap* as recited in claim 14. Therefore, it is respectfully submitted that claim 14, as well as claims 15-21 which depend therefrom are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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